UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

EPL HOLDINGS, LLC,
 	
    Plaintiff,
 	
    v.
 	
APPLE, INC,
 	
    Defendant.
	Case No. 12-cv-04306-JST
	
	CLAIM CONSTRUCTION ORDER
	Re: ECF No. 82

In this patent infringement action involving methods for modifying the playback speed of media files, the parties seek construction of seven terms used in the four patents-in-suit.

I.   BACKGROUND

A.   The Patents-in-Suit and Remaining Asserted Claims

EPL Holdings alleges that Apple infringes four of its patents through the sale and distribution of certain products, including the iPhone, the iPod Touch, the iPad, MacBook Air, MacBook Pro, Mac mini, iMac, and Mac Pro. Compl., ECF No. 54. The following chart identifies the four patents-in-suit and the remaining asserted claims:

Patent	Claims
U.S. Patent 5,175,769 ("the '769 patent")	1, 2, 10, 11 and 19
U.S. Patent 7,683,903 ("the '903 patent")	1, 3, 4, 6, 12, 13, 16 and 22
U.S. Patent 8,345,050 ("the '050 patent")	1, 3, 4, 5, 8, 10, 13, 15, 16, 17, 20, 22, 25, 26, 27, 28, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 47, 48, 49 and 50
U.S. Patent 8,384,720 ("the '720 patent")	1, 6, 7, 10 and 11

B.   The '769 Patent

The '769 patent, entitled "Method for time-scale modification of signals," teaches a method for rendering an audio file with modifications to its original playback speed, which are

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1   known as "time-scale modifications" or "TSM," in a manner that does not result in perceptible

2   pitch distortions typically associated with such modifications, such as "Alvin and the Chipmunks"

3   effects, audible splicing, or reverberation.

4   The patent distinguishes the invention from prior methods for achieving TSM, each of

5   which has significant drawbacks. For example, some of these prior methods require large

6   amounts of computation; some cannot achieve clean TSM of complex signals, such as music files;

7   and others result in audible clicks or pops. Importantly, the patent improves upon a predecessor

8   TSM method titled "Synchronized Overlap-Add" or "SOLA," which achieves TSM without

9   noticeable pitch distortion by performing the time modifications in two stages. In the first,

10 "analysis stage," the SOLA method slices and separates input signals at a fixed rate upon receipt;

11 in the second, "synthesis stage," it overlaps and merges the slices with the output signal at a

12 dynamic rate before outputting the modified signal. The patent describes SOLA as being

13 inefficient in achieving the desired signal modifications. This inefficiency is caused by the

14 method's use of variable rates of overlap in the synthesis stage, which requires a large amount of

    computation.

15 The invention, titled "Synchronized Overlap-Add, Fixed Synthesis" or "SOLAFS,"

16 improves upon SOLA by switching the dynamic and fixed aspects of the SOMA method from one

17 stage to the other, such that the invention takes slices of an input signal and separates them at a

18 dynamic, as opposed to fixed, rate in the analysis stage, and it then overlaps and merges the slices

19 with the output signal at a fixed, as opposed to dynamic, rate in the synthesis stage before

20 outputting the modified signal. The invention's use of fixed rates of overlap in the synthesis stage

21 reduces the number of computations required to produce the desired modification relative to the

22 SOLA method.

23 The invention operates as follows. In the analysis stage, the invention takes slices of the

24 input signal, namely "analysis windows" of window length "W," at a variable rate (within limits).

25 It then then searches for the starting position in the analysis window that is the most similar to the

26 portion of the output signal where the overlapping will take place by evaluating a predetermined

27 number of samples within the analysis window for "maximum similarity." The invention then

28 selects the starting position of the analysis window with the maximum similarity to the overlap

1   portion of the output signal and then overlaps and merges it with the appropriate portion of the

2   output signal at a fixed rate. The process for determining the next starting position then repeats

3   until the selected time modification is completed.

4   The specification teaches that the invention sometimes can determine the starting position

5   of the analysis window that has the maximum similarity to the overlap portion of the output signal

6   without having to evaluate each of the starting positions in the sample for "maximum similarity."

7   This process is referred to as "prediction." Prediction is possible when the invention recognizes

8   that the region of the output signal where the overlapping will occur also is contained in the

9   sample of starting positions in the analysis window. In this situation, which occurs most

10 frequently when the desired time modification is mild, the invention can "predict" with certainty

11 that one of the starting positions that is identical to the overlap region of the output signal will

12 achieve the maximum similarity, and it can therefore select one of these starting positions without

13 having to evaluate any of the remaining starting positions in the sample. When prediction takes

14 place, the selected starting position is merely overlapped, and not merged, with the output signal;

15 merging is not necessary because the overlapped regions are identical.

    Six of the seven terms to be construed are found in this patent.

C.   The '903 Patent, the '050 Patent, and the '720 Patent

16   The remaining term is found in the '903 patent, the '050 patent, and the '720 patent. These

17 patents share a specification and teach methods for ensuring that media with a modified playback

18 speed is correctly rendered in a variety of rendering systems. Rendering systems typically track

19 the current position of a media file being played, which is referred to as "current time," and utilize

20 this data to perform a variety of tasks associated with rendering the media file. The concept of

21 "current time" can be indicated either by the amount of elapsed presentation time ("presentation

22 time") or the amount of elapsed content ("data time"). When a media file is rendered at a normal

23 rate, presentation time and data time are equivalent, and for that reason, it does not matter whether

24 a rendering system measures current time based on the presentation time or the data time. When a

25 media file is rendered on a modified time-scale, however, the presentation time and the data time

26 are not the same. Thus, in the context of a media file with a modified time-scale, problems arise

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1   when a rendering system is incapable of tracking presentation time and data time separately,

2   because some components of the system will interpret current time as indicating the presentation

3   time, while others will interpret it as indicating the data time. The invention addresses these

4   problems by tracking presentation time and data time independently from the rendering system,

5   determining the type of time data required by the rendering system in order to render a media file

6   on a modified time-scale, and providing such information to the rendering system.

7   **II.   LEGAL STANDARD**

8   The construction of patent claim terms is a matter of law for the court. Markman v.

9   Westview Instruments, Inc., 517 U.S. 370, 372 (1996). A "bedrock principle" of patent law is that

10   "the claims of a patent define the invention to which the patentee is entitled the right to exclude."

11   Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005). In construing a patent term, the

12   "objective baseline" is "ordinary and customary meaning," which is "the meaning that the term

13   would have to a person of ordinary skill in the art in question at the time of the invention[.]" Id. at

14   1313. "[T]he person of ordinary skill in the art is deemed to read the claim term not only in the

15   context of the particular claim in which the disputed term appears, but in the context of the entire

16   patent, including the specification" and the prosecution history. Id.

17   The "primary basis for construing [a] claim" and "the best source for understanding a

18   technical term" is a patent's intrinsic evidence. Id. at 1314. Intrinsic evidence includes the patent

19   and its file history, including any reexaminations and reissues, related patents and their

20   prosecution histories, and the prior art that is cited or incorporated by reference in the patent-in-

21   suit and prosecution history. Id. Extrinsic evidence refers to all other types of evidence, including

22   inventor testimony, expert testimony, documentary evidence of how the patentee and alleged

23   infringer have used the claim terms, dictionaries, treatises, and other similar sources. Id. at 1318.

24   The intrinsic evidence trumps any extrinsic evidence that would contradict it. Id. at 1314.

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III.   DISCUSSION

A.   "determining an input block of W signal representations from the input stream" – '769 Patent claims 1, 10, 19

EPL's proposed construction	Apple's proposed construction
plain and ordinary meaning, subject to the term "W" defined separately	"searching for and identifying the starting position of an input block of W signal representations that is similar to the output stream" or "searching for and identifying the starting position of an input block of signal representations that is similar to the output stream"

The Court adopts Apple's first proposed construction.

This construction tracks the specification, which describes "the present invention" as supporting only one manner of "determining" the portions of the input signal that will be overlapped with the output signal, namely one in which the claimed method "search[es] for segments of the input signal near the target starting position Sa which are similar to the portion of the output signal that will overlap when constructing the output signal." '769 Patent col. 5 ll. 7-20; see also id. col. 16 ll. 63-68 to col. 17 ll. 1-2 ("In particular, the method operates by searching for similar regions in an input and an output and then overlapping the regions to produce a time-scale modified output.")

The term demands construction because it is not a "general descriptive term," as EPL contends. See EPL Brief at 9. The term has special meaning in light of the specification, which, as discussed above, describes the "present invention" as "determining" input blocks through the particular method described in the construction adopted by the Court. Where, as here, the patentee describes "the invention" as having a particular limitation, the claims are not necessarily entitled

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to a scope broader than what the specification describes. See Honeywell Int'l, Inc. v. ITT Indus., Inc., 452 F.3d 1312, 1318 (Fed. Cir. 2006) (construing claim term to include fuel filter because "[o]n at least four occasions, the written description refers to the fuel filter as 'this invention' or 'the present invention'"); see also Edwards Lifesciences LLC v. Cook Inc., 582 F.3d 1322, 1330 (Fed. Cir. 2009) ("[W]hen the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment.").

EPL also argues that Apple's proposed construction improperly excludes a preferred embodiment, namely the one that involves determining input blocks through "prediction." EPL Brief at 11-12. This argument is unsupported by the specification, which teaches that prediction is merely a truncated version of the "searching for and identifying" described in the construction adopted by the Court. Before any portion of the output signal can be reconstructed in accordance with a selected TSM, the invention first must search for and identify the starting position of the analysis window that has the maximum similarity to the portion of the output signal where the overlapping will occur. When prediction is not possible, the invention must evaluate every starting position in a predetermined sample of the analysis window to determine which of them has the maximum similarity to the overlap portion of the output signal. But, when prediction *is* possible, the invention need not evaluate the similarity of every possible starting position; instead, as soon as the invention recognizes that a starting position in the predetermined sample is identical to the overlap region of the output signal, the invention can stop the searching-and-identifying process and simply select and overlap that starting position with the output signal. See '769 patent col. 5 ll. 42-64. Prediction does not obviate the need to "search for and identify;" it merely cuts that process short. As such, the Court's construction of the term at issue does not exclude prediction.

Finally, EPL contends that Apple's proposed construction is barred by the doctrine of claim differentiation, because dependent claim 3 contains the limitations present in Apple's construction. The Court concludes that the doctrine of claim differentiation does not counsel against adopting Apple's proposed construction, because dependent claim 3 would not be rendered superfluous by that construction, as it contains various other limitations that are not present in independent claim 1. See SRAM Corp. v. AD-II Eng'g , Inc., 465 F.3d 1351, 1358 (Fed. Cir.

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2006) (restricting independent claim to a term present in a dependent claim because additional

differences existed between the independent and dependent claims).

B.   "Wov" – '769 patent claims 1, 2, 10, 11

EPL's proposed construction	Apple's proposed construction
"a parameter that represents the number of signal representations to be overlapped as determined by W and the time-scale modification"	"a parameter that represents a fixed number of signal representations to be overlapped as determined by W and the time-scale modification"[1]

The dispute with respect to this term centers on whether the number of signal representations to be overlapped is "fixed" for a particular time-scale modification.

The Court agrees with Apple that the word "fixed" must be a part of the construction of the term because the number of signal representations to be overlapped always is "fixed" for any given time-scale modification. **Accordingly, the Court adopts Apple's proposed construction.**

This construction is consistent with the specification, which expressly provides that "Wov is a predetermined, <u>fixed</u> number" that is equivalent to "W – Ss." <u>See</u> '769 patent col. 7 ll. 23-47 (emphasis added); col. 8 ll. 1-7.

EPL argues that the inclusion of the word "fixed" in the definition is improper because it limits the value of Wov to a "single, fixed value" even though "there are many possible values of the different parameters that can be used to achieve a time-scale modification as described in the '769 patent." EPL Reply at 6-7. This argument misunderstands of the scope of Apple's proposed construction. The use of the word "fixed" does not improperly restrict the parameter at issue to any specific values. Instead, the word merely indicates that once a specific time-modification is

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[1] Apple filed an amended claim construction statement that contains revised proposed constructions for Wov, Ss, and W, which differ from the constructions listed in the parties' original joint claim construction statement. <u>Compare</u> ECF No. 85, <u>with</u> ECF No. 78. The amended claim construction statement also contains a revised version of Apple's proposed construction for "current time," but this revision is not substantive. <u>See</u> ECF No. 85 at 1 n.1 (noting that revision to "current time" is limited to correcting a typographical error).

1   selected, the method then chooses a specific value for W and Ss based on that time modification,

2   which in turn fixes a value for Wov for the purpose of executing the selected time modification.

3   See '769 patent col. 15 ll. 30-40.

4   **C.**   **"determined by" — '769 patent claims 1, 19**

EPL's proposed construction	Apple's proposed construction
plain and ordinary meaning	"uniquely specified by"

8   The term "determined by" appears in claims 1 and 19 in the following context: "where

9   Wov is determined by W and the time-scale modification."

10   **The Court adopts Apple's proposed construction.**

11   Contrary to EPL's arguments, the plain and ordinary meaning of the words "determined

12   by" cannot be defined based on whether they are "unique or unusual" or whether they have

13   "common usage." EPL Brief at 17. Rather, the "ordinary meaning" of these words must be based

14   on the meaning that the words would have to a person of ordinary skill in the art in light of the

15   specification and prosecution history. See Phillips, 416 F.3d at 1313. Here, the specification

16   describes the values of Wov in the context of mathematical formulas that enable time-scale

17   modifications to be performed on any given media file. Specifically, as discussed in the previous

18   section, the specification defines the term Wov as "$Wov = W - Ss$." See '769 patent col. 8 ll. 1-9.

19   In this context, the term "determined by" takes a precise arithmetical meaning that conveys the

20   existence of a direct mathematical relationship between Wov and a particular time-scale

21   modification and the parameters that are affected by that modification (W and Ss). This meaning

22   is adequately captured by Apple's proposed definition.

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D.   "W" – '769 patent claims 1, 2, 10, 11

EPL's proposed construction	Apple's proposed construction
"a parameter that represents the duration of the windowed segments of the input signal"	"a parameter that represents a fixed duration of the windowed segments of the input signal that is the smallest unit that the time-scale modification method manipulates"

The Court adopts a modified version of Apple's proposed construction, namely "a parameter that represents a fixed duration of the windowed segments of the input signal and that is the smallest unit of the input signal that the time-scale modification method manipulates."

This construction is consistent with the specification, which teaches that "window length W is the duration of windowed segments of the input signal—this parameter is the same for input and output buffers and represents the smallest unit *of the input signal*, for example, speech, that is manipulated by the method." '769 patent col. 7 ll. 7-21 (emphasis added). Apple's proposed construction omits the definitional phrase "of the input signal" and therefore is not entirely accurate.

EPL argues in favor of a definition that omits the word "fixed" on the ground that "the W parameter does not represent a fixed duration." Reply at 9. The Courts is unpersuaded by this argument in light of the specification's description of analysis windows as "fixed segment lengths." Id. patent col. 5 ll. 65-68.

EPL also argues against a construction that includes the phrase "that is the smallest unit that the time-scale modification method manipulates" on the ground that this phrase would confuse the jury because it improperly indicates "that W can only have a single value – based on whatever is the smallest unit that the system can manipulate." EPL Reply at 9. This argument is unavailing. First, the specification expressly defines the W parameter as "represent[ing] the smallest unit of the input signal . . . that is manipulated by the method," and for that reason, the inclusion of this definitional phrase in the term's construction is appropriate and would be helpful

1   to the jury. '769 patent col. 7 ll. 7-21. Second, the Court's construction in no way implies that W

2   can have only a single value. Rather, when read in the context of the asserted claims and the

3   specification, it is clear that the construction indicates that the value of W depends on the time

4   modification selected.

5   **E.**   **"Ss" – '769 Patent claims 2, 11**

EPL's proposed construction	Apple's proposed construction
"a parameter that represents the interframe interval between successive analysis windows along the output signal"	"a parameter that represents a fixed interframe interval between successive windows of length W along the output signal"

11   **The Court adopts a variation of Apple's proposed construction, namely "a parameter**

12   **that represents a fixed interframe interval between successive analysis windows of length W**

13   **along the output signal."**

14   This construction is consistent with the specification, which describes the "present

15   invention" as having "an output signal is reconstructed using a <u>fixed</u> inter-block offset Ss." '769

16   patent col. 5 ll. 7-13 (emphasis added). The construction also adequately captures the

17   specification's description of Ss as "the interframe interval between successive <u>analysis windows</u>

18   along the output signal," which have a "window length W." <u>Id.</u> col. 7 ll. 7-21 (emphasis added).

19   Apple opposes adopting a construction that defines the output signal segments as "analysis

20   windows" on the ground that this phrase is not used in the asserted claims. The Court finds that

21   the phrase "analysis windows" is repeatedly used in the specification to describe the windows of

22   the output signal and that its use in the construction of the term at issue therefore would achieve

23   clarity and consistency. <u>See, e.g.</u>, <u>id.</u>

24   EPL argues in favor of a definition that omits the word "fixed" based on arguments similar

25   to the ones it offered in connection with the construction of the terms "Wov" and "W." The Court

26   rejects these arguments in light of the specification's explicit teaching that the values for Ss are

27   "fixed." <u>Id.</u> col. 5 ll. 7-13.

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F.   **"time scale modification/time scale modifying" — '769 patent claims 1, 10, 19**

EPL's proposed construction	Apple's proposed construction
"speeding up or slowing down the playback rate"	"a change to a signal's rate of reproduction without modifying its pitch" or "changing a signal's rate of reproduction without modifying its pitch"

The parties dispute whether the definition of these terms should include the phrase "without modifying its pitch."

The Court finds that the inclusion of this phrase in the definition is not warranted and thus adopts EPL's proposed construction.

EPL's construction is consistent with the specification, which describes time-scale modification as something that can be achieved by either "time-scale compression, i.e., a method for speeding up a playback rate of the signal, or by time-scale expansion, i.e. a method for slowing-down the payback rate of the signal." '769 patent col. 1 ll. 27-31.

Apple contends the phrase "without modifying its pitch" must be included in the term's construction because the phrase is used several times in the specification when discussing embodiments of the invention. The Court rejects this argument on the ground that there is no intrinsic evidence showing that the claims at issue must be limited to time-modifications that result in *absolutely* no pitch distortions, which is what the phrase "without modifying its pitch" requires.

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G. **"current time" — '903 patent claims 4, 12, 22; '050 patent claims 4, 16; '720 patent claims 1, 6, 7, 11**

EPL's proposed construction	Apple's proposed construction
"a current position in the media content that can be expressed either as the time elapsed since the beginning of the media content presentation or as a location in the media content stream that is currently being played"	"measure of time that is unresolved as to whether the rendering system should return a presentation time parameter value or a data time parameter value"

The Court adopts EPL's proposed construction.

This construction reflects the specification's definition of current time as a "current position in the media content that is being displayed and rendered" and that can be represented by either "presentation time" or "content time." '903 patent col. 1 ll. 27-29, 50-68; col 2 ll. 1-7. The specification further defines presentation time as "time elapsed since the beginning of the media content presentation" and content time as "a location in the media content stream that is currently being played." Id. col. 1 ll. 52-55, 64-66.

The Court declines Apple's invitation to use the word "unresolved" to define the term at issue, because this word conveys a meaning that is not directly supported by the specification or the claim language, and its use therefore could result in jury confusion.
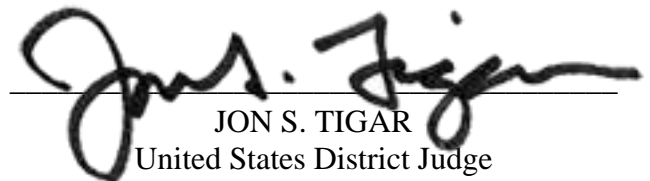
IV.   CONCLUSION

The Court construes the seven disputed terms as follows:

Disputed term	Construction
"determining an input block of W signal representations from the input Stream"	"searching for and identifying the starting position of an input block of W signal representations that is similar to the output stream"
"Wov"	"a parameter that represents a fixed number of signal representations to be overlapped as determined by W and the time-scale modification"

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Disputed term	Construction
"determined by"	"uniquely specified by"
"W"	"a parameter that represents a fixed duration of the windowed segments of the input signal and that is the smallest unit of the input signal that the time-scale modification method manipulates"
"Ss"	"a parameter that represents a fixed interframe interval between successive analysis windows of length W along the output signal"
"time scale modification/time scale modifying"	"speeding up or slowing down the playback rate"
"current time"	"a current position in the media content that can be expressed either as the time elapsed since the beginning of the media content presentation or as a location in the media content stream that is currently being played"

IT IS SO ORDERED.

Dated: February 3, 2014

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JON S. TIGAR
United States District Judge

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